

# FACT SHEET

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## CALCULATING AN EQUITABLE CROP SHARE-LEASE AGREEMENT

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Farmland rental, with crop-share leasing agreements is widely accepted in Texas. Crop-share rental agreements result in a tenant and landowner sharing the risks of farming. Crop-share rental ratios in most areas of the state are set by tradition and may not promote fairness or economic efficiency under every condition.

Farm leases are negotiated agreements between tenants and landlords. Differences in situations and bargaining strengths allow individual agreements to vary considerably. The freedom to negotiate terms can serve to allocate land among tenants in a way that contributes to economic efficiency in agriculture. A method of share-lease calculation is discussed below to help promote an equitable share-lease agreement and thus to promote economic efficiency.

### "Fair" Agreements

Fairness is difficult to define. Farmland rental agreements can be structured in many different ways. However, at least two conditions should be met to achieve an equitable sharing agreement: (1) assets must receive a return equal to their economic productivity and (2) the costs of variable inputs which determine yield levels should be shared in the same proportion as the crops gross return. These principles are basic guides to equitable share-leasing agreements, and it is hoped that they will provide incentives for each party to do the best job possible without exploitation of the resource base.

During the 1970's, an increasing demand for farmland caused tenants to bid up rental prices. Most increases have come in the form of concessions to landowners on shared inputs, not through changes in

traditional crop-share rental ratios. Such actions have caused share-leasing agreements to become increasingly less equitable.

For example, crop-share rental ratios on the Texas High Plains are one-third on feedgrains and one-fourth on cotton. Concessions to landowners over time led to tenants paying all of the variable costs of crop production and, in extreme cases, repairing, maintaining or installing fixed assets on the land.

If rent is to be increased, it is often fairer to maintain landowner participation in sharing variable input costs and to change the sharing ratio. This has the intended effect of increasing the net return to land ownership.

During the 1980's, share agreements may have to be reviewed by tenants and landlords because of the changing health of the farm economy. In some instances, rental rates may have to be decreased or increased.

A return to land under average yields and prices should be related to the risks accepted by the landowner. At one extreme there are cash leases in which the landowner accepts little or no risks of production and marketing. At the other extreme, the landowner shares production costs and price and yield risks equally with the tenant. Assuming a tradeoff between risk and the return to land, a cash lease price should be lower than a crop-share lease agreement in which the landowner participates in production costs and price and yield risks.

Where share leases are involved, fertilizer and pesticides have traditionally been considered to be cost-shared (yield determining) inputs. A case can be made for sharing irrigation costs in some areas. Increasing energy costs and the need to maintain efficient pumping plants make it equitable for landlords to share irrigation variable costs or to own the entire

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irrigation system. Tenant ownership or irrigation systems raises serious problems that are manageable only with long-term rental agreements.

With some crops, landowners should consider sharing harvesting expenses. Harvesting expenses are not yield determining, but they are generally dependent on yield. It is reasonable to expect the landowner to pay charges levied at a delivery point (ginning or drying). For example, landowners might pay for their own cotton ginning and grain drying; many pay for grain hauling and some pay a share of the harvesting if the crop is custom harvested.

Costs are easily determined where custom harvesting is used. The division of costs is more difficult when the tenant owns the harvesting equipment and provides harvesting labor. An alternative is for the landowner to share costs based on a custom rate for the area even though the tenant harvests his own crops.

### Calculating Sharing Ratios

Landowner participation in sharing more of the variable input costs has been suggested. If the crop-share rental ratio is not altered, the result is a lower return to land (landowner). Whether or not this lower return is equitable must be resolved by the negotiating process between landowner and tenant. If they agree that the lower return is too low, they should adjust it by changing the crop-share rental ratio. For example, rather than the landowner receiving one-fourth of the gross he might receive one-third of the gross receipts (minus cost shared inputs).

Cropland for rent is a resource offered on the market. In a competitive market, rental values should be determined by landowners and tenants bidding for the use of land. The only value land should have to a tenant is its ability to generate income (tenant's share) above his production costs (variable costs plus rent). In the negotiation process, tenants should not bid more for land than it will return. A landowner should not accept less for his land than the going rate for similar property.

Negotiation in a free market is an effective method of establishing land rent if expectations are realistic, if projected costs of production are calculated accurately and if this guideline on share leasing is followed in the negotiation process.

Using the negotiating process where the share ratio is unknown, assume a landowner and tenant agree that a reasonable yield for a farm is 100 bushels of corn per acre and that the expected price will be \$3.10 per bushel this year. For this example, the farmer and landlord agree that the anticipated rental price per acre is to be \$103.33. They agree that projected costs of fertilizer (\$37), pesticides (\$39) and harvesting (\$20) will be shared on the same basis as the gross returns or yield. Using these values the sharing ratio can be calculated as:

$$\begin{aligned} \text{Landlords Sharing Ratio} &= \frac{\text{Anticipated rental price per acre}}{\text{Expected Gross Return per acre} - \text{Total Shared Expenses per acre}} \\ \text{Ratio} &= \frac{33.33 \text{ bu.} \times \$3.10}{(100 \text{ bu.} \times \$3.10) - \$96} \\ &= \frac{\$103.33}{\$310 - \$96} \\ &= \frac{\$103.33}{\$214} \\ &= .483 \text{ or } 48.3\% \end{aligned}$$

This ratio shows that the landowner will receive 48.3 percent of the projected crop gross receipts (\$149.68) and pay 48.3 percent of the projected shared costs (\$46.35). Such an arrangement is equitable based only on the negotiated \$103.33 return to the landowner and the costs to be shared. During the growing season the 48.3 percent can be used to split expenses between the landlord and tenant.

The yield portion of the rental price is negotiable. If landowner and tenant agree that the calculated sharing ratio of 48.3 percent is too high, they can adjust the agreement by recalculating the per acre rental price based on a set sharing ratio. If the agreed upon sharing ratio is one-third (33.33 percent) rather than 48.3 percent the landowner's portion of yield can be recomputed as follows:

$$\begin{aligned} \text{Landlord's share of yield} &= \frac{\text{Sharing Ratio} \times (\text{Gross Return per acre} - \text{Shared Expenses per acre})}{\text{Expected Price per bushel}} \\ &= \frac{\frac{1}{3} \times [(100 \text{ bu.} \times \$3.10) - \$96]}{\$3.10 \text{ per bushel}} \\ &= \frac{\frac{1}{3} \times (\$310 - \$96)}{\$3.10 \text{ per bushel}} \\ &= \frac{\frac{1}{3} \times (\$214)}{\$3.10 \text{ per bu.}} \\ &= \frac{\$71.33 \text{ per acre}}{\$3.10 \text{ per bu.}} \\ &= 23 \text{ bushels per acre} \end{aligned}$$

Using a one-third sharing ratio, the landlord now agrees to receive 23 bushels per acre as his share of the crop (representing a rental price of \$71.33 if the expected price of \$3.10 per bushel of corn develops). During the growing season, the landlord and tenant can use the 33.33 percent sharing ratio to split and pay expenses.

Following harvest, the sharing ratio should be recomputed using actual yields, market price and costs of inputs. This step is necessary to assure that the costs of variable inputs, which determine yield levels, are shared in the same proportion as the gross return. Use the recomputed value to divide the gross receipts between tenant and landlord and to determine how the shared expenses are to be borne by each party.

This procedure suggests a way to allow tenants and landowners to bargain freely to reach a fair sharing-leasing arrangement. The values used in the example are for illustration only. Use your own values and costs in following the procedure outlined in this paper.

For additional information about crop-share lease arrangements, see MP-1394 *Evaluating Crop-Share Leases* and B-1224 *Variable Crop Share Leases*. These publications are available from your local county Extension agent.

### MATHEMATICAL EXPLANATION OF CALCULATIONS

1. 
$$\frac{\text{Anticipated Rental Price}}{\text{Rental Price}} = \frac{(\text{Sharing Ratio} \times \text{Crop Price} \times \text{Yield}) - (\text{Sharing Ratio} \times \text{Cost Shared Inputs})}{\text{Crop Price} \times \text{Yield}}$$
2. 
$$\text{Gross Receipts} = \text{Crop Price} \times \text{Yield}$$
3. 
$$\frac{\text{Anticipated Rental Price}}{\text{Rental Price}} = \frac{\text{Sharing Ratio} (\text{Gross Receipts} - \text{Cost Shared Inputs})}{\text{Crop Price} \times \text{Yield}}$$
4. 
$$\text{Sharing Ratio} = \frac{\text{Anticipated Rental Price}}{(\text{Gross Receipts}) - (\text{Cost Shared Inputs})}$$

#### YOUR ESTIMATE

$$5. \text{ Sharing Ratio} = \frac{\begin{array}{c} \text{Anticipated Rental Price} \\ (\text{Bushel Share/Acre} \times \text{Market Price}) \\ ( \quad \quad \quad ) \end{array}}{\begin{array}{c} ( \quad \quad \quad ) - ( \quad \quad \quad ) \\ (\text{Expected Price} \times \text{Farm Yield}) - (\text{Cost of Shared Inputs/Acre}) \end{array}}$$



## MATHEMATICAL EXPLANATION OF CALCULATIONS

1.  $\text{Net Income} = \text{Gross Revenue} - \text{Variable Input Costs}$   
2.  $\text{Net Income} = \text{Gross Revenue} - \text{Variable Input Costs} - \text{Fixed Costs}$   
3.  $\text{Net Income} = \text{Gross Revenue} - \text{Variable Input Costs} - \text{Fixed Costs} - \text{Overhead Costs}$   
4.  $\text{Net Income} = \text{Gross Revenue} - \text{Variable Input Costs} - \text{Fixed Costs} - \text{Overhead Costs} - \text{Land Costs}$

Costs are... The division of costs is... when the tract owns the harvesting... provides harvesting labor. An... landowner to share costs... for the acre... his own...

### Calculating Sharing Ratio

Landowner's share of variable input costs has been... share ratio is not altered... return to land... Whether or not this lower return is equitable may be reached by the negotiating process between landowner and tenant. They agree that the lower return is...

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